



DNREC Virtual Public Hearing

Denali Water Solution's Permit Renewal (Docket #2022-P-W-0007)

Welcome. Any visual content that is part of this hearing will appear in this window.

Computer Audio: Use the **audio connections menu** to turn audio on or off.

Telephone Audio: DIAL-in Number: 1-408-418-9388

Access code: 2330 752 1237

Comments will be accepted using the DNREC Comment form, via email, or by USPS mail as noted on the hearing event page (de.gov/dnrechearings)



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ENVIRONMENTAL CONTROL

Overview of Denali's Land Ap. Business

- Denali applies dissolved air flotation solids (DAF) as fertilizer to permitted land at a nitrogen loading rate.
- Current sources of DAF include Pet Poultry Products in Bridgeville DE; Allen Harim Harbeson and Milton DE; Amick Farms Hurlock MD; Tyson Temperanceville VA; Valley Proteins, Inc. in Linkwood MD; Mountaire Selbyville DE; Perdue Georgetown and Milford DE, and Salisbury MD facilities.
- The initial AGU permit (State Permit Number AGU 1703-K-05) for the Schiff Farm, Inc. farm locations was issued in late 2017 to Enviro Organic Technologies, Inc. and was transfer to Denali later in 2017. Currently there are 9 land application sites under this permit.
- A second separate AGU permit (State Permit Number AGU 2103-K-05) is issued to Denali for the Collier Farm which is located approximately 7 miles west of Harrington and consists of approximately 350 acres of land (this permit is not part of tonight's public hearing).

Locations of Denali's Land Ap. Farms Under this Permit

- Schreiber Farm (Feedlot 2) -This application site consists of approximately 160 acres of land suitable for land application and is located approximately 8 miles west of Harrington, Delaware.
- Seeney Farm - This application site consists of approximately 100 acres of land suitable for land application and is located approximately 8 miles west of Harrington, Delaware.
- Cain Farm - This application site consists of approximately 90 acres of land suitable for land application and is located approximately 3 miles west of Frederica, Delaware.
- Masten Farm -This application site consists of approximately 174 acres of land suitable for land application and is located approximately 4 miles north of Harrington, Delaware.
- Bergold Farm - This application site consists of approximately 170 acres of land suitable for land application and is located approximately 5 miles north of Harrington, Delaware.



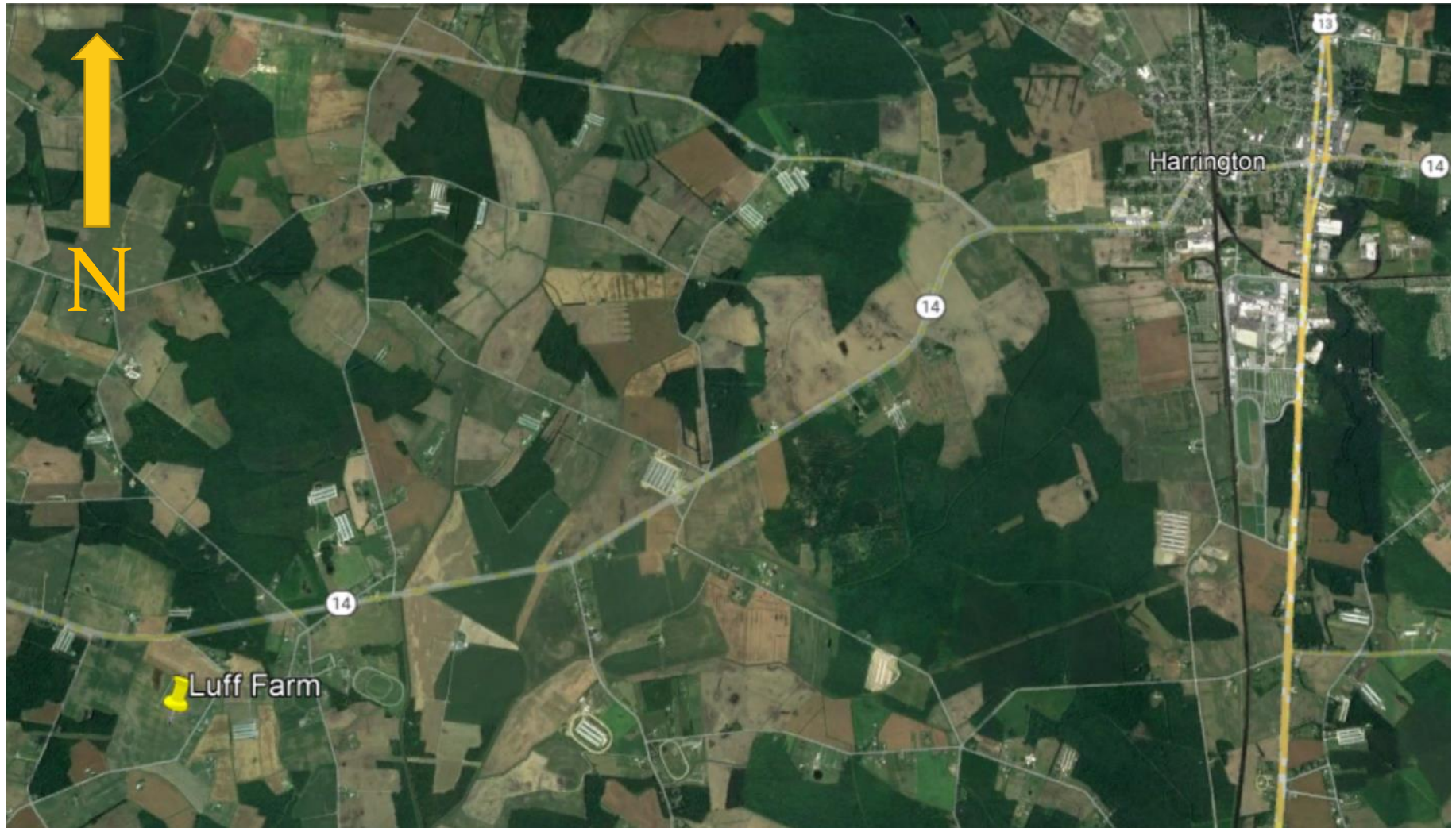
Location of Denali's Land Ap. Farms

Under this Permit Continued

- Winkler Farm - This application site consists of approximately 325 acres of land suitable for land application and is located approximately 4 miles north of Harrington, Delaware.
- Harrison Farm - This application site consists of approximately 75 acres of land suitable for land application and is located located approximately 7 miles northwest of Harrington, Delaware.
- Home Farm - This application site consists of approximately 119 acres of land suitable for land application and is located approximately 7 miles northwest of Harrington, Delaware.
- Collison Farm - This application site consists of approximately 320 acres of land suitable for land application and is located approximately 4 miles north of Harrington, Delaware.
- Luff Farm (new proposed site) - This application site consists of approximately 91 acres of land suitable for land application and is located approximately 6 miles southwest of Harrington, Delaware.



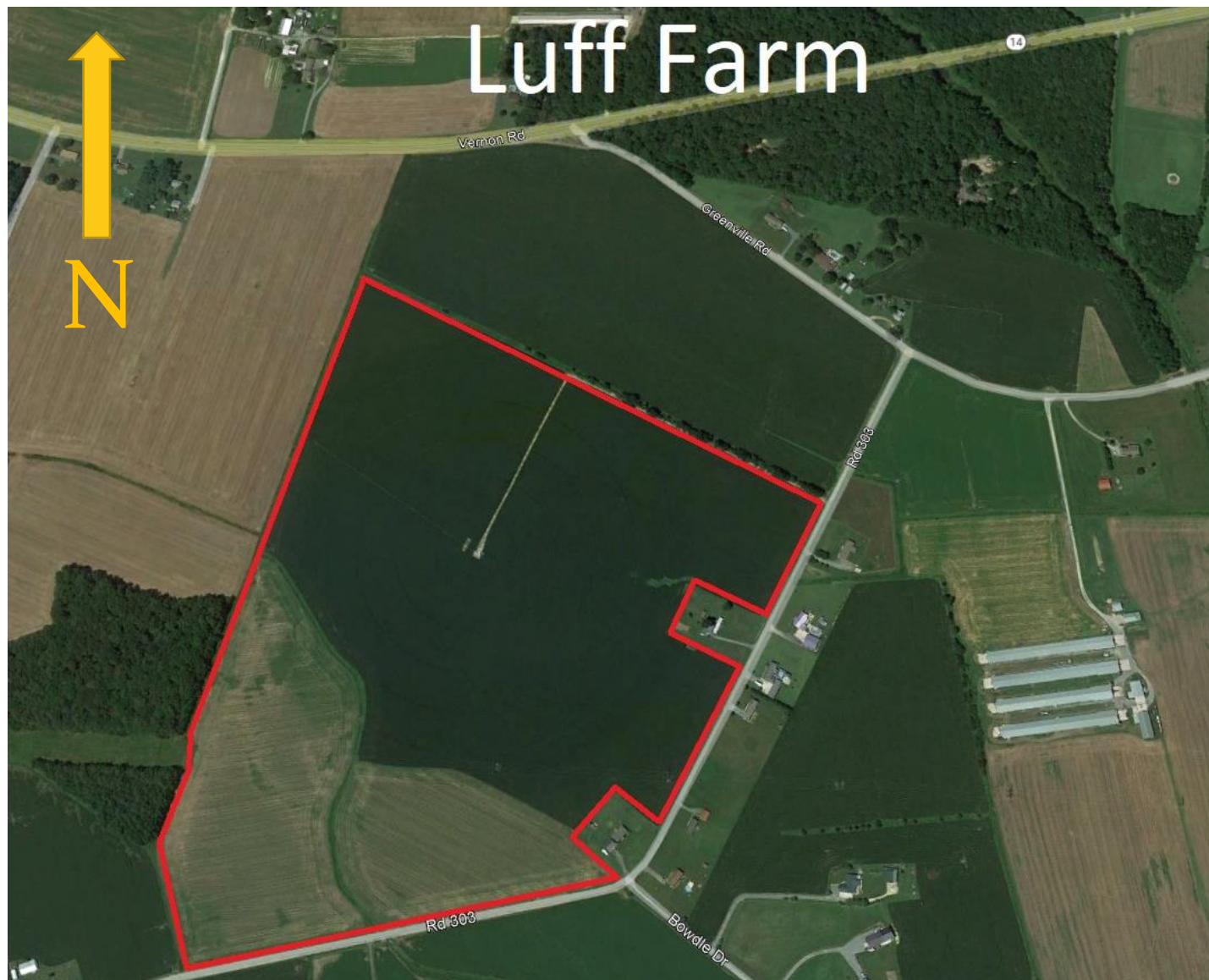
Proposed Luff Farm Location



Located approximately 6 miles southwest of Harrington, DE



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Approximately 91 acres of land suitable for land application located southwest of the intersection of High Stump Road and Greenville Road



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What is DAF?

- Water is used to process chickens and pet food. During the processing, very small bits of meat, fat, and other particles become mixed into the process water and the process water becomes wastewater.
- Early in the wastewater treatment process, the wastewater goes through screens that capture many of the particles in the wastewater stream; however, the smallest particles pass through the screens and remain suspended in the wastewater.



What is DAF?

- The next step in the wastewater treatment process is typically a “DAF unit” which is utilized to remove additional particles from the wastewater.
- DAF treatment involves floating off many of the remaining tiny particles with air bubbles and then concentrating and temporarily storing the dewatered particles.
- The partial treated water that is separated from the DAF solids passes through the DAF unit for additional treatment in the WWTP.



What is DAF?

- <https://www.youtube.com/watch?v=iQS5lbSz8ig&t=31s>
- The concentrated and dewatered DAF solids are placed into a tanker truck and can be beneficially reused as a fertilizer.
- DAF land applied under Denali's AGU permits do **not** contain a sanitary waste component (human waste component).



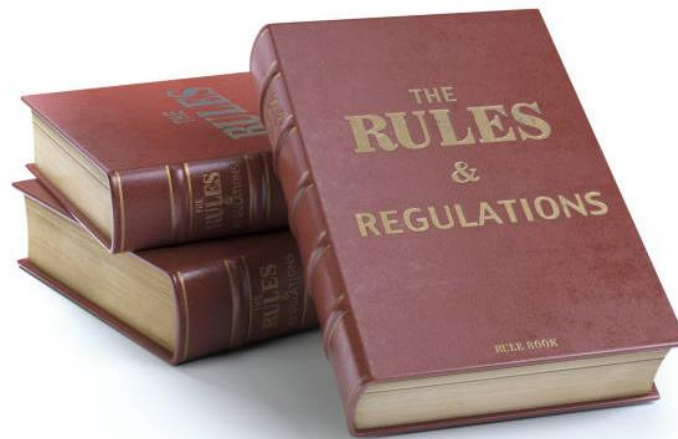


Why is DAF Land Applied?

- Like animal manure, DAF contains nitrogen and phosphorus which is essential for plant growth and optimum crop yields.
- Most of the nitrogen in DAF is in the organic form thus is slow-release nitrogen, which helps reduce the potential of the leaching of nitrogen to groundwater.
- Over time, the application DAF increases the organic content of soil, resulting in improved water holding capacity and soil quality and can help increase soil productivity.

How is DAF Regulated?

- State of Delaware – DNREC - Guidance and Regulations Governing the Land Treatment of Wastes (7 Del. Admin. C. §7103)
 - Part V “Land Treatment of Waste Products”



Key Land Application Site Requirements and Restrictions

- Sampling is required of the **DAF** that will be land applied **and** the **soil** it is applied onto (for many parameters including nutrients, metals, percent solids, pH, etc.)
- A soil report is required before any site is approved – this is done to determine site suitability for land application and to delineate areas not suitable for land application.
- 20” separation from depth of tillage to the seasonal high GW table is required. Separation is checked utilizing temporary auger soil borings prior to the commencement of application.
- The permittee is required to track all DAF application and apply material at an agronomic rate consistent with rates in an annual NMP developed by a DE Certified Nutrient Consultant.

Key DAF Land Application Site Requirements and Restrictions

- Hydraulic loading rates are not appropriate for application of DAF – N dictates application limits
- Buffers zones must be maintained from wells, streams, ditches, property lines, houses, etc.
- Implementation of odor minimization BMPs (injection of DAF and disking in material spilled on surface).
- Adverse weather condition restrictions (rain and snow) and no application from 12/7 through 2/15.
- Cover crops are required in winter after application



Sampling of DAF Prior to Application

- Prior to the commencement of land application activities, DAF from various approved sources is mixed in storage tanks.
- Separate composite samples are collected from each storage tank and analyzed for the parameters in the AGU permit.
- Loading rates are calculated based on the average plant available N values from the mixture of DAF.
- DAF is then applied up to an agronomic rate for the appropriate crop consistent with recommendations of a DE certified nutrient consultant.

DAF Land Application



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Application Method Video



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DAF Land Application



Soils are “Worked Up” Prior to Seeding



Crops Utilize Nutrients in the Soil



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Nutrient Management

- DAF contains N and P and is utilized as a fertilizer.
- Nitrogen may be applied up to an agronomic rate (crop nitrogen requirement based on realistic crop yields)
- Supplemental commercial fertilizer is frequently utilized to meet crop N requirement
- Loading rate recommendations are determined by a DE Certified Nutrient Consultant



Nutrient Uptake

Crop roots take up and utilize nutrients from the land applied DAF.



Odors

- DAF has a moderate to strong odor comparable to manure in strength.
- An application event is typically completed in a few days.
- As injection only leaves a small portion of DAF on the soil surface and application is limited to once every 3 years (or less), odor complaints are rare (there have not been any odor complaints in the past several years).
- The majority of odors subside over the first few days after the conclusion of application activities.

Minimum Application Buffers

Buffers are required to be maintained from dwellings, wells, roads, streams, ponds, etc.



	Surface Application	Surface Injection
Occupied off-site dwelling	200 feet	100 feet
Occupied on-site dwelling	100 feet	50 feet
Potable wells	100 feet	100 feet
Non-potable wells	25 feet	25 feet
Public roads	25 feet	15 feet
Property lines	50 feet	25 feet
Streams, tidal waters, or other water bodies	50 feet	33 feet
Drainage ditches	25 feet	25 feet

Buffers are Flagged Prior to Each Application Event



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DNREC Inspections

- DNREC routinely inspects approved application sites during application activities to ensure compliance with permit conditions.
- DNREC inspects fields after land application activities to verify appropriate crops are planted.
- DNREC's permit requirements are designed to protect human health and the environment.



Contact Information

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and Residuals)

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Public Hearing Exhibits

DNREC Exhibits:

- Exhibit 1: Permit Application and Project Development Report
- Exhibit 2: Permit Renewal Legal Notices
- Exhibit 3: Part V of the Guidance and Regulations Governing the Land Treatment of Wastes
- Exhibit 4: Request for Hearing, Comments, and Confirmation Email
- Exhibit 5: Public Hearing Legal Notices
- Exhibit 6: State Calendar Posting of Hearing
- Exhibit 7: Draft Agricultural Utilization Permit
- Exhibit 8: DNREC's PowerPoint Presentation

Applicant's Exhibit:

- Exhibit 1: Applicant's PowerPoint Presentation



DNREC Virtual Public Hearing

Clean Delaware LLC's Permit Renewal (Docket #2022-P-W-0007)

Thank you for joining us. We will accept comments on this matter through June 2, 2022.

Comments may be submitted in writing

via [DNREC Comment form](https://dnrec.alpha.delaware.gov/public-hearings/comment-form/) - <https://dnrec.alpha.delaware.gov/public-hearings/comment-form/>

via [email](mailto:DNRECHearingComments@delaware.gov)- DNRECHearingComments@delaware.gov

or by USPS mail:

Theresa Newman, Hearing Officer

DNREC – Office of the Secretary

89 Kings Highway, Dover, DE 19901

The full verbatim transcript will be posted when it becomes available.

For more information, find the event page for this hearing on the DNREC Public Hearings page

dnrec.alpha.delaware.gov/public-hearings/



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